

Work Order ID 137680

Wednesday, October 07, 2015 12:42:58 PM

137680

Page 1

Item ID: D4353-041

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Bearpaw Assembly

Start Date: 10/07/15 Start Qty: 2.00

Cust Item ID:

Required Date: 10/07/15 Req'd Qty: 2.00

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 10/07/15 Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D4353	B

120

0.00

120

FLOW WATER JET

Waterjet

Memo

0.03

FLOW CNC Waterjet

Cut Blank as per D4353-1 File

(4)

12/15/16

130

0.02

130

HAAS CNC VERTICAL MACHINING #1

HAAS 4

Memo

0.02

HAAS CNC vertical machine #4

1-Inspect material for defects or damage prior to machining.

2-Program batch number. Ensure that batch number reflects the W/O.

3-Machine as per Folio FB050 and Dwg.

FOLIO REV: AA

DWG REV: B

4-Deburr

4

0

DAS
20
9-89

15-11-20

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :			
Misidentified	☐	Past Due	☐				

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Work Order ID 137680

Wednesday, October 07, 2015 12:42:58 PM

137680

Page 4

Item ID: D4353-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bearpaw Assembly
Start Date: 10/07/15 Start Qty: 2.00 ***2*** Cust Item ID:
Required Date: 10/07/15 Req'd Qty: 2.00 ***2*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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190

QC21- Final Inspection - Work Order Release

0.00

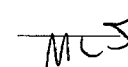
190

QC

Memo

0.00

Quality Control

 ~~JAN 18 2016~~ 20150116

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Picklist Print

Wednesday, October 07, 2015 12:42:58 PM

Page 1

Work Order ID: 137680

137680

Parent Item: D4353-041

D4353-041

Parent Item Name: Bearpaw Assembly

Start Date: 10/07/15

Required Date: 10/07/15

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A NEW ISSUE 11-04-12 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

MUHMWB10

Purchased

No

sf

484.0000

12.8

MUHMWB10

UHMW 1" Black - 48"x120" Tivar Mfg.#52480104

02/15/11/16

Location

Loc Qty

Loc Code

MAT

84

m132063

84

MAT018

m133248

400

400

Each

1.0000

2

25

16/01/18

DAS
36
9-89

D4353-3

Manufactured

No

D4353-3

Bearpaw Insert

Location

Loc Qty

Loc Code

GA

1

125851

1

B140672
4X

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY																																																																																																																											
Environment	☐	Design	☐	Doc/Data	☐	Equip/Tooling	☐	Handling/Pre	☐	Material	☐	Internal Transport	☐	Tribal Knowledge	☐	LOA	☐	Substation	☐	Past Expiry Date	☐	Misidentified	☐	No Re-verification	☐	Operator	☐	Offset/Setup	☐	Supplier	☐	Training	☐	Use for Testing	☐	Poor Information	☐	Rushing	☐	Product Improvement	☐	Process Improvement	☐	Manufacturing Process	☐	Past Due	☐	Pressure/Forced	☐	Bending	☐	Centre Not Concentric	☐	Cracks	☐	Crimp/Kink/Ripple/Wave	☐	Cuffs	☐	Crushing	☐	Heat Treat	☐	Wave/Twist in Tube	☐	Marks/Chatter	☐	Temperature/Cure	☐	Set-up	☐	BOM/Route	☐	Broken/Damage/Defect	☐	Inspection Incomplete/Unqualified	☐	Contamination	☐	Countersink	☐	Cut Too Short	☐	Instructions Incomplete/Unclear	☐	Drill Holes	☐	Power Loss/Surge	☐	Folio/Program	☐	Grain	☐	Weld	☐	Wrong Stock Pulled	☐	Out of Sequence	☐	Off-set	☐	Mislabeled	☐	Fit/Function	☐	Misaligned/off center	☐	Positioned Wrong	☐	Outside Dimensions	☐	Over/Under tolerance	☐	Part Incorrect	☐	Part Lost/Missing	☐	Part Moved	☐	Drawing	☐	Finish	☐	Misread	☐	Turning Sequence	☐
OTHER : _____																																																																																																																															

DART AEROSPACE LTD		Work Order:	137680
Description: Bearpaw		Part Number:	D4353-1
Inspection Dwg: D4353	Rev: B	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.38	+/-0.030	.377	✓		SL10	Vern
7.375	+/-0.010	7.375	✓		1	
12.50	+/-0.030	12.500	✓		SL01	Type
1.38	+/-0.030	1.380	✓		1	
3.813	+/-0.010	3.813	✓		1	
24.00	+/-0.030	24.000	✓		SL01	
10.09	+/-0.030	10.090	✓		SL01	
1.00	+/-0.030	1.000	✓		1	
6.150	+/-0.010	6.150	✓		1	
3.038	+/-0.010	3.038	✓		1	
6.563	+/-0.010	6.563	✓		1	
9.250	+/-0.010	9.250	✓		SL01	
27.00	+/-0.030	27.000	✓		SL01	
1.25	+/-0.030	1.250	✓		1	
0.30 x 45°	+/-0.030	.300 x 45°	✓		1	
1.38	+/-0.030	1.380	✓		1	
0.63	+/-0.030	.625	✓		1	
0.95	+/-0.030	.952	✓		1	
R0.25	+/-0.030	.250	✓		Rad gauge	
0.70	+/-0.030	.700	✓		1	
0.07 x 45°	+/-0.030	.070 x 45°	✓		1	
Ø0.650	+/-0.010	.649	✓		1	
Ø0.261	+0.006/-0.001	.260	✓		1	
0.400	+/-0.010	.400	✓		1	
4.750	+0.012/-0.000	4.750	✓		1	
4.000	+0.012/-0.000	4.000	✓		1	
5.75	+/-0.030	5.750	✓		1	
0.63	+/-0.030	.630	✓		1	
0.57	+/-0.030	.575	✓		1	
0.25	+/-0.030	.248	✓		1	
0.45	+/-0.030	.450	✓		1	
0.06 x 45°	+/-0.030	.060 x 45°	✓		1	
R0.25	DAS +/-0.030	.250	✓		Rad gauge	

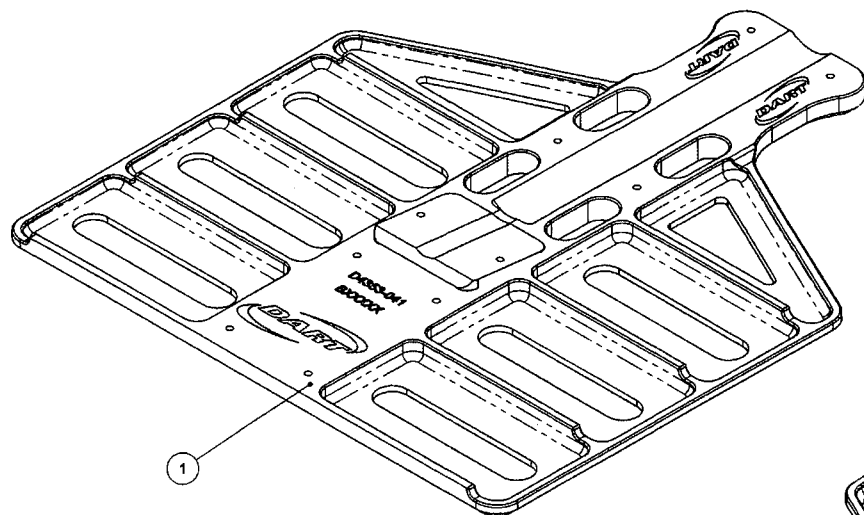
Measured by:	20 9-89
Date:	15-11-20

Audited by:	DAS GC
Date:	15/11/23 9-89

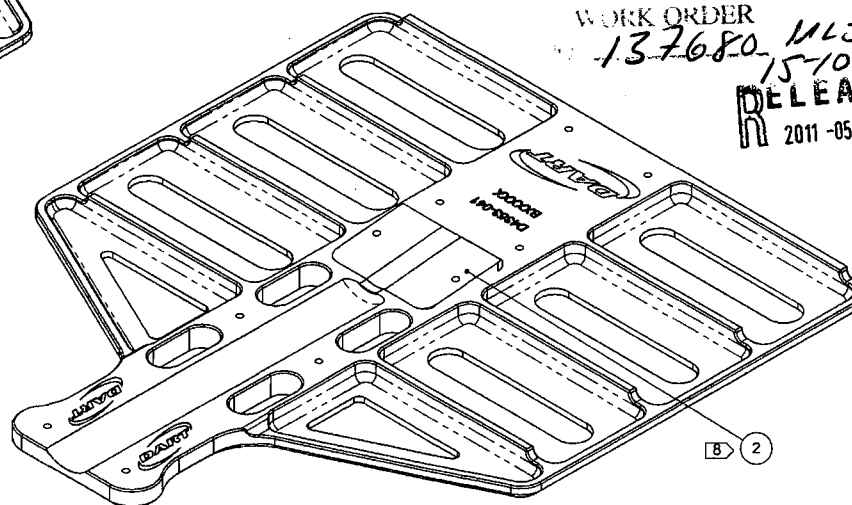
Preliminary Approval:	
Date:	

Rev	Date	Change	Revised by	Approved
A	11.07.26	New Issue	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D4353-041	429 BEARPAW ASSEMBLY
1	1	D4353-1	429 BEARPAW
2	1	D4353-3	429 BEARPAW INSERT



D4353-041 429 BEARPAW ASSEMBLY



STOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

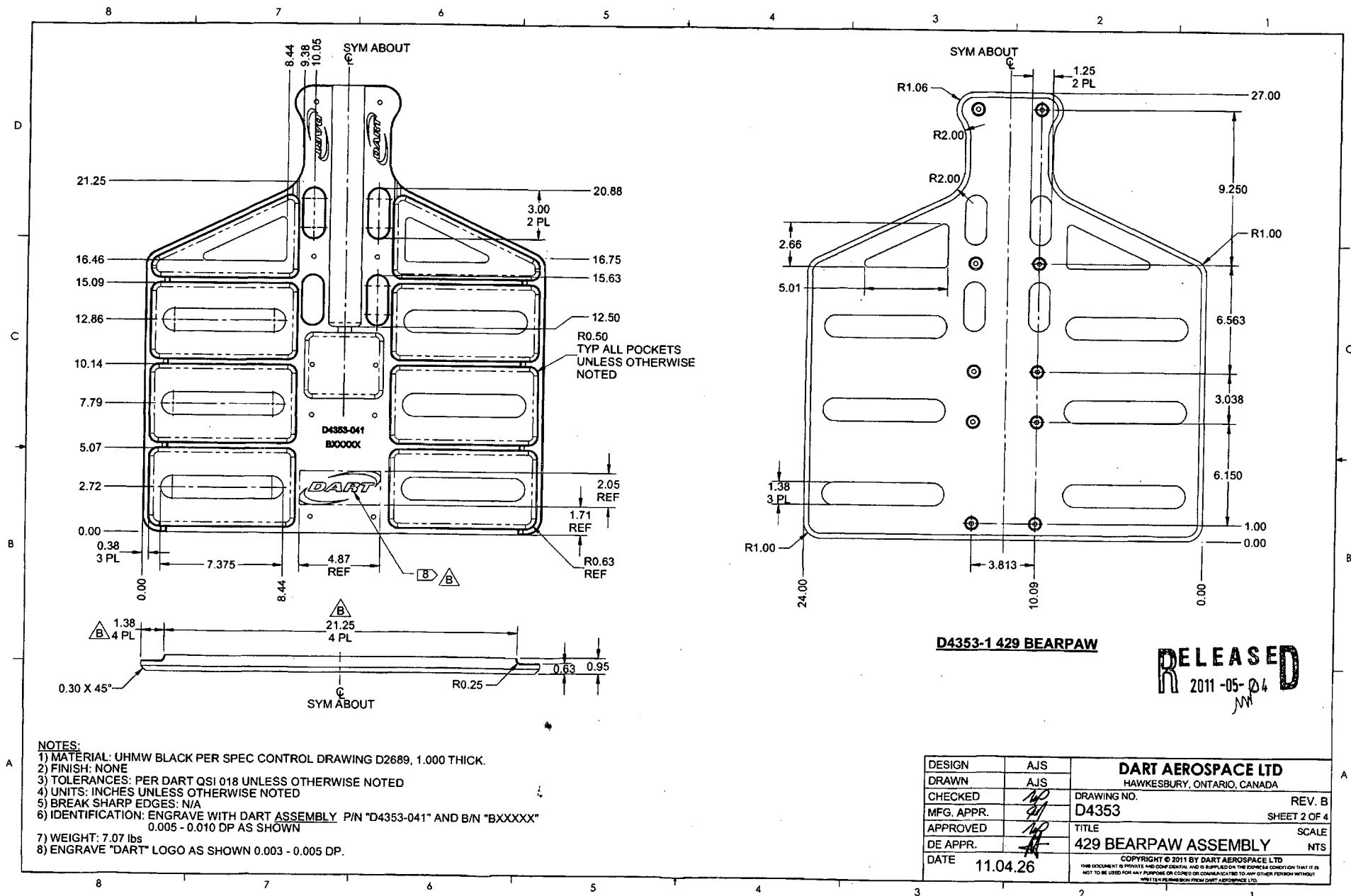
137680 MJS
15-10-08
RELEASED
2011-05-24

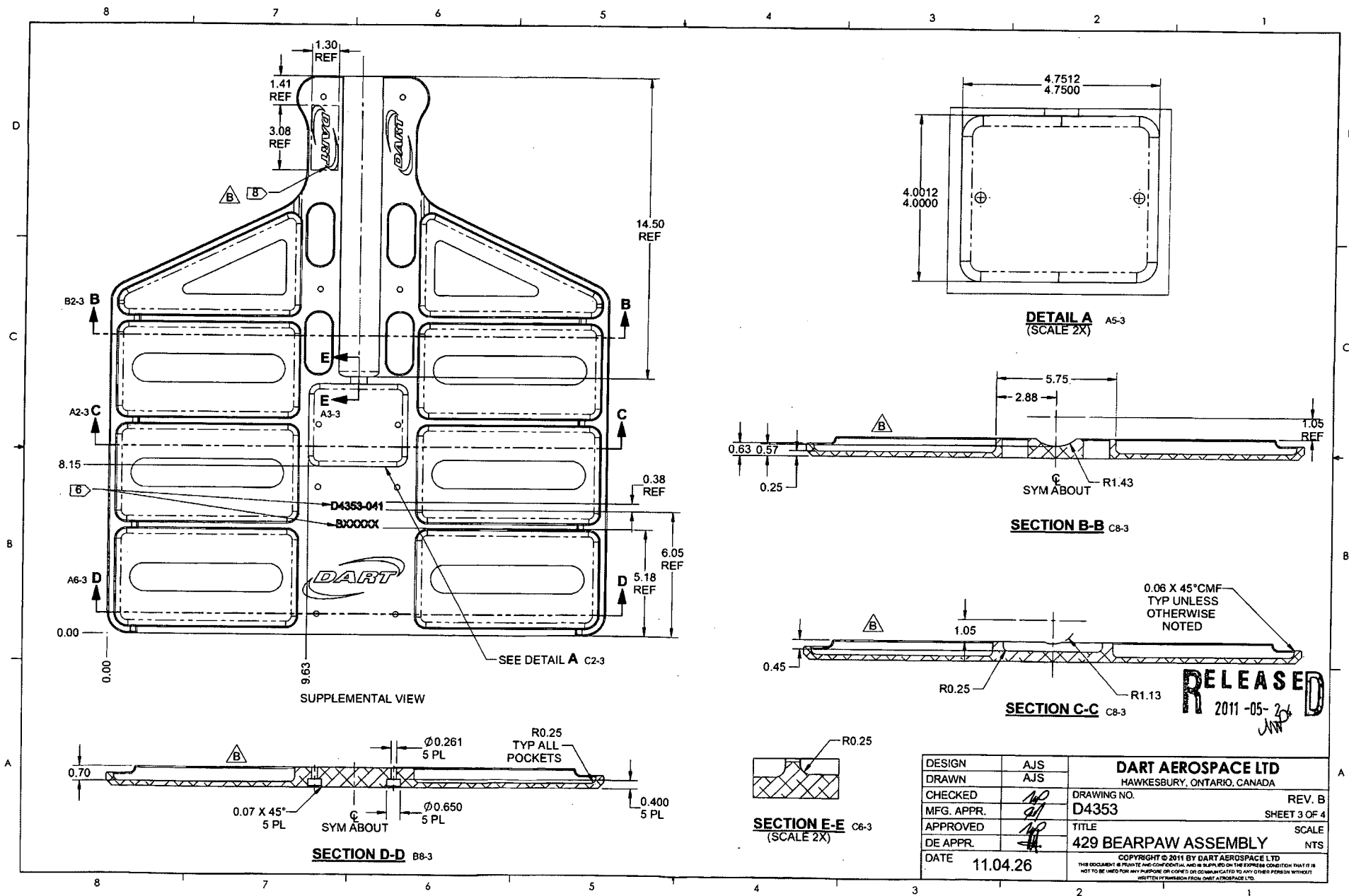
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 7.45 lbs
- 8) PRESS FIT



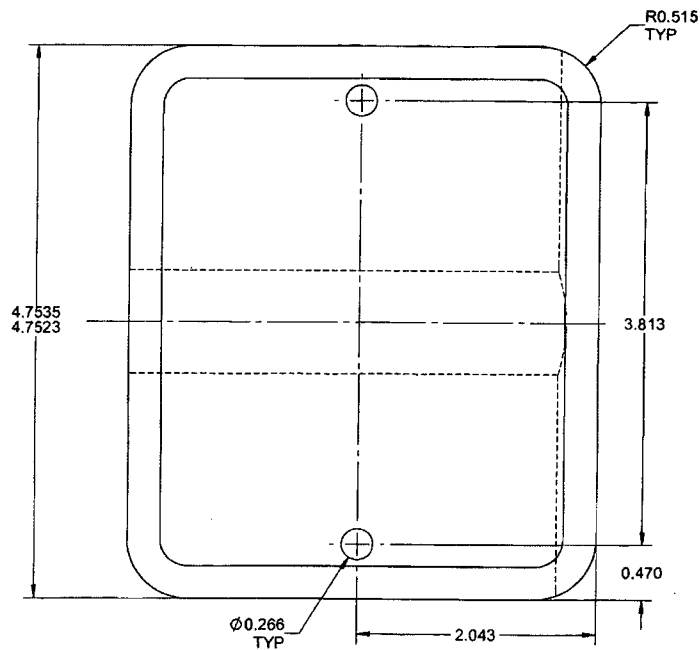
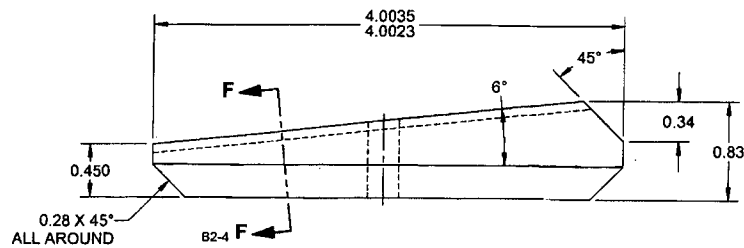
B	SHT 1 WEIGHT CORRECTED WAS 8.24 lbs. SHTS 1-3 DART LOGOS UPDATED. SHT 2, ZONE B8, AFT POCKET REDUCED, RIB INCREASED IN HEIGHT. SHT 3 SECTS. B,C & D RIB INCREASED IN HEIGHT.	AJS	11.04.26
A	NEW ISSUE	AJS	11.03.24
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D4353 TITLE 429 BEARPAW ASSEMBLY SCALE NTS COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR ANY COMMUNICATION TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DRAWN	AJS		
CHECKED	<i>[Signature]</i>		
MFG. APPR.	<i>[Signature]</i>		
APPROVED	<i>[Signature]</i>		
DE APPR.	<i>[Signature]</i>		
DATE	11.04.26		
		REV. OF	SHEET 1 OF



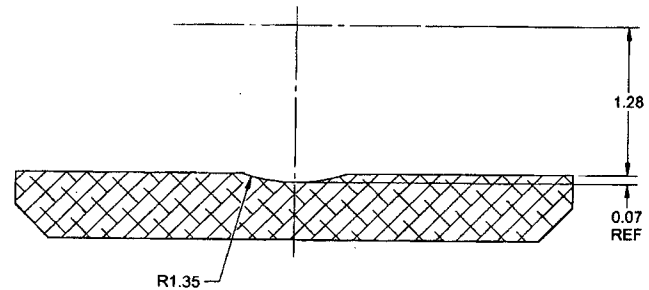
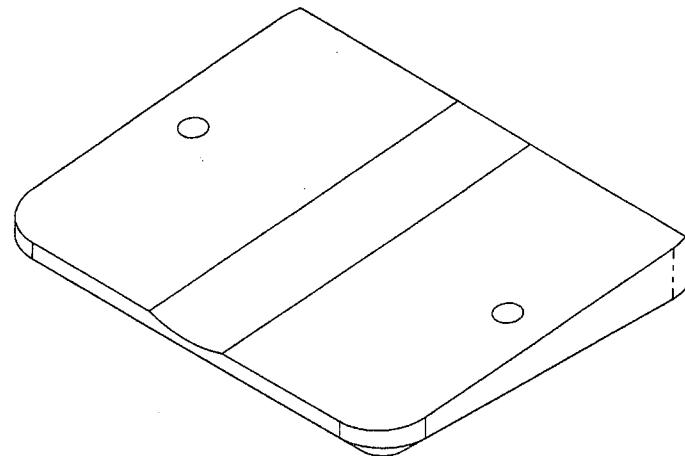


RELEASED
2011-05-24
JW

DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	AP	DRAWING NO.	REV. B
MFG. APPR.	AP	D4353	SHEET 3 OF 4
APPROVED	AP	TITLE	SCALE
DE APPR.	AP	429 BEARPAW ASSEMBLY	NTS
DATE	11.04.26	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



D4353-3 429 BEARPAW INSERT



SECTION F-F C7-4

RELEASED
2011-05-26

- NOTES:**
- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.000 THICK.
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.38 lbs

DESIGN	AJS	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D4353	SHEET 4 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	429 BEARPAW ASSEMBLY	NTS
DATE	11.04.26	COPYRIGHT © 2011 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR REPRODUCTION OR FOR ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			